→ ag Drainage
Pesticides
Selenium
Salinity

Toxicity → 726.0610-34
→ Phase II - Meeting
→ Potential toxicity in sediment
water & sediment

MEMORANDUM

TO: CALFED Ecosystem Water Quality Technical Sub-Team:
Steve Yaeger, Ron Ott, Palma Risler, Carol Howe, Rick Woodard, Bruce Macler, Chris Foe, Jerry Bruns, Harry Rectenwald, Brian Finlayson, Steve Schwazback, Bill Bennett, Leo Winternitz, Bruce Thompson, Michael Carlin, Victor de Vlaming, Phyllis Fox, Susan Hatfield, Bob Herkert, Jeff Jaraczeski

FROM: Carol Howe

Data

→ Persistent Chemical
Sediments
PCBs DDTs

DATE: August 30, 1996

Actions –
Unknown toxicity
- Research into water & sediment toxicities

SUBJECT: Meeting Minutes
CALFED Ecosystem Water Quality Technical Sub-Team
Thursday, August 22

Sub-Team Members Present: Ron Ott, Carol Howe, Vic de Vlaming, Jerry Bruns, Palma Risler, Brian Finlayson, Bob Heckert, Susan Hatfield, Phyllis Fox, Rick Woodard
Others present: Russ Brown, Don Wagenet, Sarah Holmgren, Michelle Wong

REVIEW OF FIRST MEETING OF ECOSYSTEM WATER QUALITY SUB-TEAM

Relationship Between CALFED Alternatives and the Water Quality Techncial Sub-teams
The meeting began with a review of the relationship between the 3 CALFED Alternatives and the work of the 3 water quality technical subteams (urban, agriculture, and ecosystem). Currently, each subteam is formulating a specific set of actions to address water quality. In October, the three subteams will meet to discuss the similarities and differences of each subteam's actions. By the end of October, the actions defined by the 3 water quality subteams will be merged to form a Draft CALFED Water Quality Program. Ultimately, the Water Quality Program will be incorporated into the CALFED Alternatives.

Metals of Concern
Five metals that were identified as of concern to the Delta in the first ecosystem water quality meeting were reviewed and verified. These metals were:

Metals	Organics	Other
• ***Cadmium***	Carbofuran	DO
• ***Copper***	Chlorpyrifos	Ammonia
• ***Mercury***	Chlordane	Salinity
• ***Selenium***	Diazinon	Temp
• ***Zinc***	Torpedene	Turbidity
	DDT	Unknown Toxicity
	PCB	

The sub-team **decided that measurements for concentrations of cadmium, copper and zinc should use the dissolved form (rather than total recoverable).** Total recoverable concentrations are applicable to selenium and mercury, including methyl mercury.

Discussion focused on potential sources of metals. Some sub-team members expressed the belief that Iron Mountain Mine is the primary source of metals to the Delta. A discussion was held on the role of rice farming as a major source of some parameters of concern. The team agreed that major improvements have been made by the rice-farming industry over the last ten years and that they may no longer be a significant source of contaminants. Sub-team members generally believe that most metals are transported to the Delta from upstream sources, except for selenium whose sources are within the Delta and upstream.

It was **decided that the CALFED consultants would do additional research on loadings of metals and other parameter of concern** to better understand the relative magnitude of sources.

Geographic Focus
Four geographic focus areas identifed in the first meeting were reviewed and verified. The focus areas were:

- ***Suisun Bay***
- ***Delta***
- ***San Joaquin River***
- ***Sacramento River***

The sub-team **decided to also consider specific areas on the Sacramento River such as Iron Mountain Mine and the Colusa Basin Drain,** where anadromous fish are adversely impacted on a localized basis. The rationale for this decision was that although these areas are located well outside of the Delta they impact anadramous fish that travel through the Delta. As actions are further refined, these areas may be removed from consideration.

EXPLANATION OF MATERIALS MAILED OUT TO SUB-TEAM

The sub-team reviewed materials that were mailed out to the sub-team by the CALFED CT prior to the meeting. General discussions on the materials included:

Defining ecosystem water quality problem areas
"Hot spots" of contamination, as defined by the SWRCB, were discussed. The subteam **decided that the term "Hot Spot" should be replaced with the term "Problem Area"**. One suggestion on how to define a problem areas was:

"Areas of known ecological impact (undefined), and/or in exceedence of federal, state or regional water quality criteria".

A discussion ensued on the importance of being able to define water quality "problems" to other CALFED water quality subteams and the public. It was noted that the sub-team must be able to explain how contaminants of concern were chosen and actions prioritized to address the contaminants of concern.

A general discussion took place on what constituted appropriate criteria to identify the parameters of concern. Potential criteria identified included:

- *Potential human health impact (i.e., exceedence of standards for fish consumed by humans)*
- *Known ecological impact (e.g., exceedence of standards, chronic or acute toxicity, elevated tissue levels)*
- *Professional judgement*

The sub-team discussed the use of toxicity information to help define appropriate actions. **It was decided that toxicity information could be used as a criterium and/or an action**. The difficulties in characterizing organics (i.e., acute vs.chronic problem in the Delta, toxicity in bioassay tests vs. known ecological effects) was also discussed.

The sub-team discussed migratory animals and **decided that anadromous fish would be the only migratory animals of concern** because they rely on Delta water quality for survival. Recognizing the difficulty of determining the source of contamination for migratory species, migratory birds will not be addressed/used as bioindicators by the ecosytem water quality subteam.

The sub-team discussed the difficulties with current available data. The nature of the current data sets is quite variable and therefore makes comparisons and prioritization of parameters of concern a challenge. Some studies use dfferent species from one year to the next. Others have different numbers of replicates (e.g. is seeing a problem once, as evidenced by exceedence of a standard, enough to constitute a problem?). Concentration, duration, and regularity need to be considered but are varied. The sub-team indicated that the published data the CALFED consultant team is using may be outdated and that they had access to more recent data. It was **decided that each sub-team member would supply the CALFED CT with relevant data that they could access on the selected parameters of concern.**

IDENTIFICATION OF ADDITIONAL PARAMETERS OF CONCERN

Organics
Seven organics were identified by the sub-team as parameters of concern:

- ***Carbofuran***
- ***Chlorpyfiros***
- ***Chlordane***
- ***Diazinon***
- ***Toxaphene***
- ***DDT***
- ***PCBs***

The sub-team recommended that judgement be reserved on three additional organics:

- ***Dacthal(broad leaf herbicide)***
- ***MBTE (alternative fuel)***
- ***Diuron***

It was **decided that the sub-team and CALFED CT would look for further information on these parameters before making a final decision.**

A discussion of information that would be required on organic loadings included the need to identify specific monitoring stations to measure ecosystem water quality. Areas of sources and impacts should be considered when selecting a monitoring location. Also the need to identify year type (e.g., wet, dry, etc.) to establish times/years of high flow and pulses of contamination, and the duration of high loadings.

Other Parameters of Concern
The sub-team identified the following parameters, in addition to metals and organics, as of concern in the Delta:

- ***Dissolved Oxygen***
- ***Ammonia***
- ***Salinity***
- ***Temperature***
- ***Turbidity***
- ***Unkown Toxicity***

Additional Actions to those Specified by CALFED

The sub-team noted some additional actions (beyond those in the CALFED list) that should be considered to address the parameters of concern including:

1. Use of toxicity testing to determine if specific parameters are a problem
2. Reducing pathogens by restricting boats from dumping waste into the Delta (i.e. potential methods could include posting signs and/or creating a public education campaign, funding agencies to better enforce regulations, etc).
3. Preventing further DO problems in the Stockton area by addressing urban runoff in new developments.
4. Formulating actions to address **sediment toxicity and unknown toxicities**.

ACTIONS RESULTING FROM MEETING

The following information will be <u>provided by the technical sub-team</u> to the CALFED CT:

1. Any information (e.g. location of monitoring stations, monitoring data, acute or chronic toxicity, bioassays, sources and loadings, regulations, etc.) that the team can access, through their

representative agencies, on the selected parameters of concern (cadmium, copper, mercury, selenium, zinc, carbofuran, chlorpyfiros, chlordane, diazinon, toxaphene, DDT, PCBs, dissolved oxygen, ammonia, salinity, temperature, and turbidity) plus dacthal, MBTE and diuron. This information will be used (if possible) to:

- provide a complete documented profile of each parameter of concern
- facilitate decision making by the sub-team on whether the selected parameters of concern should remain in this process
- prioritize selected parameters of concern based on extent and magnitude of problems caused by parameter
- target actions based on quantity and source of parameter loadings
- set ranges of acceptable parameter limits for use in alternative analysis

Information should be additional to that available in the bibliography provided to the sub-team by the CALFED CT. All information supplied should be sourced and qualified (i.e. years available, year type, etc.) Geographic scope should encompass the Delta, Suisun Bay, and Sacramento and San Joaquin basins. Data should be limited to the last 5 years if possible.

Sub-team members should note if they are aware of any new regulations or practices that may have come into effect (i.e. discharge requirements for industry, etc.) that would influence how data should be used and interpreted (do not want to suggest actions for parameters that have already been addressed).

2. Information from **rice industry representative and/or regulator** on timing of regulations and operational changes that have influenced the quantity of pesticides being released from rice fields. Any data on discharges (especially copper) should also be supplied.

3. Information from **EPA** on Great Lakes numerical objectives (including hardness graphs) the CT should be using.

4. Suggestion on terminology of what constitutes a "Problem Area" in the context of the chosen contaminants of concern.

5. A review and critique of the information (hand-outs) presented to the team to date.

6. Completion of the "Proposed Water Quality Action" worksheet (updated version with greater definition of actions to be supplied by CALFED CT by 9/3/96).

<u>Information on items:</u>
1-5 required by 9/6/96.
6 required by 9/13/96.

The CALFED CT will present the following information at the next ecosystem water quality meeting scheduled for September 19, 1996.

1. A profile on each parameter of concern including problem areas, sources, loadings from sources, toxicity, monitoring stations, regulatory objectives/standards, etc.

2. A compilation of the results of the "Proposed Water Quality Action" worksheet including the major benefits and constraints to implementing the actions and the parameters each action will address.